

59 C.C.P.A. 920, *; 457 F.2d 506, **;
1972 CCPA LEXIS 352, ***; 173 U.S.P.Q. (BNA) 356

IN RE PAUL L. LINDNER

No. 8684

United States Court of Customs and Patent Appeals

59 C.C.P.A. 920; 457 F.2d 506; 1972 CCPA LEXIS 352; 173 U.S.P.Q. (BNA) 356

Oral argument March 6, 1972 April 6, 1972

PRIOR HISTORY: [*1]**

APPEAL from Patent Office, Serial No. 400,901

DISPOSITION: Affirmed.

CASE SUMMARY


PROCEDURAL POSTURE: Appellant sought review of rejection of the claims in a patent application by the Patent Office Board of Appeals.


OVERVIEW: Appellant sought review of rejection of the claims in its patent application. Appellant sought to patent a dispersant, which essentially mixed a compound with another described in another patent, though not in the form delineated in appellant's patent application. The patent claims were denied by the examiner who determined that it would have been obvious that a person of the ordinary skill in the art would expect a mixture of the dispersants, also to be a dispersant. The Patent Office Board of Appeals upheld the examiner's decision. The court affirmed the rejection holding that the suggested combination in appellant's application would have been prima facie obvious to those skilled in the art and mere conclusory statements in the specification and affidavits are entitled to little weight when the Patent Office questions the efficacy of those statements.

OUTCOME: Rejection of patent claims, affirmed. The court held that mere conclusory statements in the specification and affidavits are entitled to little weight and the suggested combination in appellant's application would have been prima facie obvious to those skilled in the art.


CORE TERMS: dispersant, composition, ingredient, mixture, fertilizer, compound, ester, acid, phosphoric acid, specification, examiner, dispersion, toxicant, polybasic, sulfonic, water-soluble, organic, chain, synergistic, aliphatic, biocidal, aqueous, alkyl, salt, ethylene oxide, prima facie, surfactant, polyoxyethylene, refractory, consisting


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[Patent Law](#) > [Nonobviousness](#) > [Tests & Proof of Obviousness](#) 

[Patent Law](#) > [Infringement](#) > [Acts of Infringement](#) 

HN1  It is well established that the objective evidence of nonobviousness must be commensurate in scope with the claims. [More Like This Headnote](#)

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[Patent Law](#) > [Infringement](#) > [Acts of Infringement](#) 

HN2 Mere lawyers' arguments unsupported by factual evidence are insufficient to establish unexpected results. [More Like This Headnote](#)

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[Patent Law](#) > [Infringement](#) > [Acts of Infringement](#)

HN3 Mere conclusory statements in the specification and affidavits are entitled to little weight when the Patent Office questions the efficacy of those statements. [More Like This Headnote](#)

COUNSEL: *Sidney Wallenstein* (Wallenstein, Spangenberg, Hattis & Strampel), attorneys of record, for appellant. *Samuel Stearman*, of counsel.

S. Wm. Cochran for the Commissioner of Patents. *Jack E. Armore*, of counsel.

OPINIONBY: ALMOND

OPINION: [****506**]

Before RICH, ALMOND, BALDWIN, LANE, Associate Judges, and MALETZ, Judge, sitting by designation

[***920**] ALMOND, Judge.

This is an appeal from the decision of the Patent Office Board of Appeals affirming the rejection of claims 1, 2, 5, 6, 8, 10, 11, 13, 15, 17, and 19 in appellant's application entitled "Dispersant Compositions Comprising (A) Phosphoric Esters of Ethoxylated Long Chain Compounds and (B) Surfactant Polybasic Compounds Containing at Least One Sulfonic or Sulfuric Acid Radical." n1 No claims have been allowed.

----- Footnotes -----

n1 Serial No. 400,901 filed October 1, 1964.

----- End Footnotes -----

The invention relates to dispersant compositions which are particularly useful in emulsifying water-insoluble [****2**] organic solvent solutions of biocidal toxicant (i.e., insecticide, weed killer, herbicide, or soil fumigant) and aqueous solutions of fertilizer material. Appellant states in his specification that while a number of dispersant compositions [***921**] are known which produce excellent dispersions of biocidal toxicants in aqueous solutions of a wide variety of water-soluble fertilizers, there are some fertilizer solutions (for example, liquid fertilizers commonly referred to as 7-21-7 and 6-18-6) which are particularly resistant or refractory to the production of fully satisfactory dispersions. The claimed dispersant compositions comprise ingredients (a) and (b) which are said to "coact to produce a synergistic effect" in that they produce stable dispersions with refractory fertilizer solutions as well as other fertilizer solutions. The compounds which may be used as ingredient [****507**] (a) are water-soluble to readily water-dispersible phosphoric acid mono- and di- esters of polyoxyethylene ethers, usually in the form of ethylene oxide adducts, of long chain aliphatic alcohols, long chain aliphatic mercaptans and alkyl phenols. The compounds which may be used as ingredient (b) [****3**] are organic solvent-soluble surfactant polybasic acids which contain at least one radical selected from the group consisting of sulfonic acid and sulfuric acid radicals.

Claim 1 is illustrative:

1. A dispersant composition comprising (a) a water-soluble to readily water-dispersible phosphoric acid ester of at least one member selected from the group consisting of (1) long chain aliphatic ethers and thioethers of polyoxyethylene glycols, the long chain aliphatic radicals containing from 10 to 26 carbon atoms, and (2)

polyoxyethylene glycol ethers of alkylated phenols the alkyl radical or radicals of which contain a total of from 7 to 24 carbon atoms, the number of oxyethylene groups in the molecules of said (a) compounds falling within the range of 4 to 30, and (b) an organic solvent-soluble surfactant polybasic acid compound containing at least one radical selected from the group consisting of sulfonic and sulfuric acid radicals.

Like claim 1, claims 2, 5, 6, 8, 10 and 11 are directed to dispersant compositions. The recitation of the composition of ingredients (a) and (b) varies in breadth in these claims. Claims 13 and 15 are directed to toxicant concentrate containing *****4** a dispersant composition. Claims 17 and 19 are for a combination of biocidal toxicant water-soluble organic salt fertilizer composition emulsified with a dispersant composition. Appellant, in his brief, indicates that he considers claims 10, 11 and 17, as well as claim 1, to be illustrative. However, since all the claims have otherwise been considered together by both the Patent Office and appellant, they apparently will stand or fall together.

The references relied upon are:

Lindner	2,976,211	Mar. 21, 1961
Nunn et al. (Nunn)	3,004,056	Oct. 10, 1961

Lindner discloses dispersant compositions (as well as toxicant concentrates and dispersions comprising toxicants and aqueous solutions of water-soluble fertilizers) containing (a) certain polybasic acid compound surfactants and (b) certain amine salts of alkyl benzene ***922** sulfonic acids. Ingredient (a) of the mixture in the Lindner patent is the same as ingredient (b) of the claimed mixture.

Nunn discloses that phosphoric acid esters of various ethylene oxide adducts, the same compounds as those of ingredient (a) of the claimed mixture, may be used generally as dispersing agents.

The examiner *****5** rejected all the claims under 35 USC 103 as unpatentable patentable over Lindner in view of Nunn, reasoning that since the compounds shown in Lindner and the compounds shown in Nunn the each known to be dispersants, it would have been obvious to combine these two old dispersants, and one of ordinary skill in the art would expect a mixture of such dispersants also to be a dispersant. The board agreed with the examiner.

We, too, agree with the examiner. The polybasic acid compounds of ingredient (b) and the phosphoric acid esters of ingredient (a) are all known dispersants as indicated by the art of record. In addition, Lindner indicates that mixtures of dispersant compositions may be advantageously used to permit combining concentrated aqueous fertilizer solutions with organic solvent solutions of biocidal substances to produce homogenous emulsions or dispersions. While the second ingredient in the mixture in the Lindner patent (i.e., the amine salts of alkyl benzene sulfonic acids) is in no way related to the second ingredient in the claimed mixtures (i.e., the phosphoric acid esters), this does not detract from the teaching in Lindner that mixtures of known dispersant compositions *****6** may be used. Considering the various teachings of the prior art, we ****508** conclude that the suggested combination of the polybasic acids of Lindner with the phosphoric acid esters of Nunn would indeed have been prima facie obvious to those skilled in the art.

Although appellant elsewhere in his brief contends that there is no teaching which suggests combination of the ingredients of Lindner and Nunn (an argument which we reject for the reasons given above), at one point he seemingly admits that the Patent Office has established a case of prima facie obviousness when he states:

If all that appellant obtained by combining the (a) and (b) classes of dispersants was simply a dispersant composition whose properties and utilities were essentially the same as those of the (a) and (b) dispersants per se, we should have no quarrel with the decision of the Board of Appeals * * *.

It is appellant's position that when the particular (a) and (b) classes of dispersants are used in combination, a synergistic effect is produced and properties are obtained and results are achieved which are unobtained and unobtainable with either the (a) or (b) dispersants alone. In support of this *****7** contention, appellant relies on both the specification as filed and a Rule 132 affidavit submitted in response to the examiner's

[*923] continuance of the rejection "in the absence of convincing evidence of unexpected coaction."

The examiner and the board found the Rule 132 affidavit unpersuasive for a number of reasons, but basically it was their view that since only a single composition of those included in the claims was tested, the affidavit "falls far short of establishing that the compositions encompassed by claims of the scope of those on appeal possess unexpected properties." The same complaint about a lack of sufficient factual evidence of a synergistic effect with all the compositions claimed was leveled against the specification.

[1] We fully agree with the position of the Patent Office in that regard. **HN1** It is well established that the objective evidence of nonobviousness must be commensurate in scope with the claims. See, e.g., In re Hyson, 59 CCPA 782, 453 F.2d 764, 172 USPQ 399 (1972); In re Tiffin, 58 CCPA 1420, 448 F.2d 791, 171 USPQ 294 (1971) (per curiam). Here only one mixture of ingredients was tested, that being a mixture of (a) phosphoric acid ester **[***8]** of 12 mol ethylene oxide adduct of nonyl phenol (containing about 60% mono- and about 17.5% diester) and (b) half ammonium half isopropylamine salt of the sulfosuccinic acid ester of the oleic acid amide of monoisopropanolamine (65% active). This particular mixture was found to produce a good dispersion with refractory 7-21-7 fertilizer solutions. As the board noted, the specification also indicates that the same mixture was successfully used with 7-21-7 fertilizer solutions. The claims, however, are much broader in scope, covering mixtures of numerous compounds, and we have to agree with the Patent Office that there is no "adequate basis for reasonably concluding that the great number and variety of compositions included by the claims would behave in the same manner as the [single] test composition." Cf., In re Saunders, 58 CCPA 1316, 1324, 444 F.2d 599, 605, 170 USPQ 213, 218 (1971).

The affidavit and specification do contain allegations that synergistic results are obtained with all the claimed compositions, but those statements are not supported by any factual evidence other than that limited amount of evidence discussed above. This court has said previously that **HN2** mere lawyers' **[***9]** arguments unsupported by factual evidence are insufficient to establish unexpected results. In re Cavanagh, 58 CCPA 856, 436 F.2d 491, 168 USPQ 466 (1971); In re Takai, 59 CCPA 701, 449 F.2d 1393, 171 USPQ 558 (1971). Likewise, **HN3** mere conclusory statements in the specification and affidavits are entitled to little weight when the Patent Office questions the efficacy of those statements. In re Hyson, supra; In re D'Ancicco, 59 CCPA 748, 452 F.2d 1060, 172 USPQ 241 (1972). After considering the specification, **[**509]** affidavit, and **[*924]** arguments of counsel, we agree with the board that there is insufficient evidence to overcome the case of prima facie obviousness found to exist here.

The board also affirmed the examiner's rejection of all claims, except claim 11, under 35 USC 112. However, because of our disposition of the rejection under 35 USC 103, we find it unnecessary to reach the § 112 issue.

The decision of the board is affirmed.






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*349 F.3d 1333, *; 2003 U.S. App. LEXIS 23072, **;
68 U.S.P.Q.2D (BNA) 1940*

CFMT, INC. and CFM TECHNOLOGIES, INC., Plaintiffs-Appellants, v. YIELDUP INTERNATIONAL CORP.,
Defendant-Appellee.

01-1452

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

349 F.3d 1333; 2003 U.S. App. LEXIS 23072; 68 U.S.P.Q.2D (BNA) 1940

November 12, 2003, Decided

SUBSEQUENT HISTORY: Rehearing denied by CFMT, Inc. v. Yieldup Int'l Corp., 2003 U.S. App. LEXIS 26684 (Fed. Cir., Dec. 9, 2003)

PRIOR HISTORY: **[**1]** Appealed from: United States District Court for the District of Delaware. Judge Roderick R. McKelvie. CFMT, Inc. v. Yieldup Int'l Corp., 144 F. Supp. 2d 305, 2001 U.S. Dist. LEXIS 7593 (D. Del., 2001)

CASE SUMMARY

PROCEDURAL POSTURE: Plaintiff patent holders sued defendant competitors for patent infringement under 35 U.S.C.S. § 271. The competitors denied infringing, claiming invalidity for nonenablement and unenforceability for inequitable conduct, and moved for summary judgment. The patent holder moved for summary judgment of enablement. After trial, the United States District Court for the District of Delaware held for the competitors. The patent holder appealed.

OVERVIEW: The patents covered a semiconductor wafer cleaning system. The district court based its nonenablement judgment on: (1) lack of utility or inoperability and (2) undue experimentation needed to carry out the invention. The court held that the district court erred in requiring that the patent disclosures enable a single embodiment. In essence, this set the 35 U.S.C.S. § 112 enablement bar too high. The lengthy experiments did not show nonenablement because the inventors undertook that work to satisfy commercial requirements, not to show enablement. While the record did not appear to present a genuine issue of material fact about whether a person of ordinary skill in the art could achieve any level of cleaning with the claimed invention without undue experimentation, this court remanded for reconsideration of that question. Moreover, the district court also clearly erred in finding that the applicants' statements were material misrepresentations. The statements were not inaccurate and the materiality of the undisclosed subject matter was low, so there was little basis for inferring intent. The district court clearly erred in finding in inequitable conduct in prosecuting the patents.

OUTCOME: The appellate court reversed and vacated the judgment and remanded for reconsideration.

CORE TERMS: patent, wafer, invention, fluid, contaminant, inventor, enablement, cleaning, semiconductor,

experimentation, examiner, vessel, apparatus, inequitable conduct, stream, removal, clean, undue, obviousness, chemical, rinsing, summary judgment, nonenablement, disclose, invalid, disclosure, processing, removing, skill, advocacy

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[Civil Procedure](#) > [Summary Judgment](#) > [Standards of Review](#) 

HN1 ♦ A federal circuit court reviews without deference a district court's grant of summary judgment. [More Like This Headnote](#)

[Civil Procedure](#) > [Summary Judgment](#) > [Summary Judgment Standard](#) 


HN2 ♦ A court considering summary judgment must view the evidence presented through the prism of the substantive evidentiary burden. The court must also draw all reasonable inferences in favor of the nonmovant. [More Like This Headnote](#)

[Civil Procedure](#) > [Appeals](#) > [Standards of Review](#) > [De Novo Review](#) 


[Patent Law](#) > [Infringement](#) > [Claim Interpretation](#) 

HN3 ♦ An appellate court reviews patent claim construction without deference. [More Like This Headnote](#)

[Civil Procedure](#) > [Appeals](#) > [Standards of Review](#) > [De Novo Review](#) 

[Patent Law](#) > [Specification & Claims](#) > [Enablement Requirement](#) 

HN4 ♦ On a claim of patent infringement, enablement is a question of law with factual underpinnings; the appellate court reviews the ultimate legal conclusion without deference. [More Like This Headnote](#)

[Civil Procedure](#) > [Appeals](#) > [Standards of Review](#) > [Clearly Erroneous Review](#) 

[Civil Procedure](#) > [Appeals](#) > [Standards of Review](#) > [Abuse of Discretion](#) 

[Patent Law](#) > [Inequitable Conduct](#) > [Burdens of Proof](#) 

HN5 ♦ In the context of a patent infringement claim, the appellate court reviews a determination of inequitable conduct for abuse of discretion and reviews the underlying factual issues of materiality and intent for clear error. [More Like This Headnote](#)

[Patent Law](#) > [Specification & Claims](#) > [Enablement Requirement](#) 

HN6 ♦ Enablement does not require an inventor to meet lofty standards for success in the commercial marketplace. Title 35 does not require that a patent disclosure enable one of ordinary skill in the art to make and use a perfected, commercially viable embodiment absent a claim limitation to that effect. Title 35 requires only that the inventor enable one of skill in the art to make and use the full scope of the claimed invention. Thus, when an invention claims a general system to improve the cleaning process for semiconductor wafers, the disclosure enables that invention by showing improvements in the overall system. The enablement requirement is met if the description enables any mode of making and using the claimed invention. Of course, if a patent claimed a system that achieved cleanliness up to a specified numerical particle-free range, then enablement would require disclosure of a method that enables one of ordinary skill to achieve that range without undue experimentation. Thus, the level of disclosure necessary to satisfy 35 U.S.C.S. § 112 varies according to the scope of the claimed invention. [More Like This Headnote](#)


[Patent Law](#) > [Specification & Claims](#) > [Description Requirement](#) 


HN7 ♦ Patents are not production documents, and nothing in the patent law requires that a patentee must disclose data on how to mass-produce the invented product. The law requires that patents disclose inventions, not mass-production data, and that patents enable the practice of inventions, not the organization and operation of factories. [More Like This Headnote](#)


[Patent Law](#) > [Specification & Claims](#) > [Enablement Requirement](#) 

HN8 ♦ On a patent infringement claim, the United States Court of Appeals for the Federal Circuit


gauges enablement at the date of the filing, not in light of later developments. [More Like This Headnote](#)


[Patent Law](#) > [Utility Requirement](#) > [Proof of Utility](#) 

[Patent Law](#) > [Specification & Claims](#) > [Enablement Requirement](#) 


HN9  The United States Court of Appeals for the Federal Circuit has recognized the relationship between the enablement requirement of 35 U.S.C.S. § 112 and the utility requirement of 35 U.S.C.S. § 101. If the claims in an application fail to meet the utility requirement because the invention is inoperative, they also fail to meet the enablement requirement because a person skilled in the art cannot practice the invention. [More Like This Headnote](#)


[Patent Law](#) > [Utility Requirement](#) > [Proof of Utility](#) 

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
HN10  An inoperable invention is not enabled. [More Like This Headnote](#)


[Patent Law](#) > [Utility Requirement](#) > [Proof of Utility](#) 


[Patent Law](#) > [Specification & Claims](#) > [Enablement Requirement](#) 


HN11  The inoperability standard for utility applies primarily to claims with impossible limitations. Moreover, where a patent discloses several alternative combinations of methods (as most systems claims will), the party asserting inoperability must show that all disclosed alternatives are inoperative or not enabled. [More Like This Headnote](#)


[Patent Law](#) > [Specification & Claims](#) > [Enablement Requirement](#) 


HN12  Improvement and selection inventions are ubiquitous in patent law; such developments do not alone cast doubt on enablement of the original invention. In general, few patented inventions are an immediate commercial success. Rather, most inventions require further development to achieve commercial success. Thus, additional inventive work does not alone show nonenablement. [More Like This Headnote](#)


[Patent Law](#) > [Specification & Claims](#) > [Applicant's Theory of Invention](#) 


HN13  Patent acquisition does not require any threshold level of effort or ingenuity. 35 U.S.C.S. § 103 (a). Patentability shall not be negated by the manner in which the invention was made. 35 U.S.C.S. § 103. It is immaterial whether the invention resulted from long toil and experimentation or from a flash of genius. The path that leads an inventor to the invention is expressly made irrelevant to patentability by statute. Thus, an improvement patent alone is not conclusive evidence of undue experimentation. [More Like This Headnote](#)


[Patent Law](#) > [Inequitable Conduct](#) > [Materiality, Scienter & Effect](#) 


[Patent Law](#) > [Inequitable Conduct](#) > [Burdens of Proof](#) 

HN14  Inequitable conduct requires proof that a patent applicant did not disclose material information to the Patent and Trademark Office with intent to deceive. More specifically, inequitable conduct includes affirmative misrepresentation of a material fact, failure to disclose material information, or submission of false material information, coupled with an intent to deceive. These elements must be shown with clear and convincing evidence. Under the pre-1992 standard for materiality standard, information is material if there is a substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent. [More Like This Headnote](#)


[Patent Law](#) > [Nonobviousness](#) > [Tests & Proof of Obviousness](#) 


HN15  **Obviousness** requires a suggestion of all limitations in a claim. [More Like This Headnote](#)

[Patent Law](#) > [Nonobviousness](#) > [Tests & Proof of Obviousness](#) 

HN16  A patent applicant cannot prove **unexpected results** with attorney argument and bare

statements without objective evidentiary support. It is well settled that **unexpected results** must be established by factual evidence. Mere argument or conclusory statements do not suffice. During patent prosecution, an applicant may submit objective factual evidence to the Patent and Trademark Office in the form of patents, technical literature, and declarations under 37 C.F.R. § 1.132 (2003) submitting expert testimony and, at times, test data. [More Like This Headnote](#)

[Patent Law](#) > [Inequitable Conduct](#) > [Burdens of Proof](#) 

HN17  A district court may infer intent to deceive the Patent and Trademark Office. However, even gross negligence does not alone suffice to establish intent. Instead, the involved conduct, viewed in light of all the evidence, including evidence indicative of good faith, must indicate sufficient culpability to require a finding of intent to deceive. [More Like This Headnote](#)

COUNSEL: Henrik D. Parker, Woodcock Washburn LLP, of Philadelphia, Pennsylvania, argued for plaintiffs-appellants. With him on the brief were Barbara L. Mullin, Richard B. LeBlanc, and David N. Farsiou. Of counsel on the brief was Fred T. Magaziner, Dechert LLP, of Philadelphia, Pennsylvania.

L. Gene Spears, Baker Botts L.L.P., of Houston, Texas, argued for defendant-appellee. With him on the brief was David G. Wille, Baker Botts, L.L.P., of Dallas, Texas.

JUDGES: Before RADER, Circuit Judge, FRIEDMAN, Senior Circuit Judge, and LINN, Circuit Judge.

OPINIONBY: RADER

OPINION:

[*1334] RADER, Circuit Judge.

On summary judgment, the United States District Court for the District of Delaware determined that CFMT, Inc.'s U.S. Patent No. 4,778,532 (the '532 patent) and U.S. Patent No. 4,917,123 (the '123 patent) are invalid, CFMT, Inc. v. YieldUp Int'l Corp., 92 F. Supp. 2d 359 (D. Del. 2000), and, after a bench trial, unenforceable, CFMT, Inc. v. YieldUp Int'l Corp., 144 F. Supp. 2d 305 (D. Del. 2001). Because the district court erred in applying both the enablement and **[**2]** inequitable conduct requirements, this court reverses-in-part, vacates-in-part, and remands.

[*1335] I.

The '532 and '123 patents cover a system for cleaning semiconductor wafers. The process for manufacturing semiconductor wafers must keep them as free as possible from contamination to prevent defects in semiconductors. To keep the wafers clean, conventional processes sequentially immerse the wafers in various liquids in an open environment. This bathing procedure exposes the wafers to airborne contaminants and also exposes workers to hazardous chemicals.

The '532 and '123 patents claim improvements in these open cleaning systems. Specifically, the '532 and '123 patents claim a system that is closed to the outside environment and requires no human handling. Instead the wafers remain at all times in a closed container that sequentially introduces different chemicals to clean the wafers. Because the '123 patent is a divisional of the '532 patent, the two patents have identical disclosures. The parent '532 patent contains method claims only. Independent claims 1 and 55 are representative (emphases added):

1. An enclosed, full flow method for the cleaning of semiconductor wafers **[**3]** comprising positioning said wafers in a vessel, closing said vessel to the environment, and flowing process fluids sequentially and continuously past said wafers in said vessel, including the steps of

(a) contacting said wafers with at least one cleaning fluid to remove contaminants from said wafers;

(b) removing said cleaning fluid from said wafers with a rinsing fluid; and

(c) removing said rinsing fluid from said wafers with a drying fluid;

whereby the processing does not require movement or operator handling of said wafers between said steps; and maintaining the vessel containing said wafers hydraulically full during each process step.

55. An enclosed, full flow method for the treatment of semiconductor wafers comprising positioning said wafers in a vessel, closing said vessel to the environment, and flowing process fluids in sequential steps continuously past said wafers in said vessel, including the step of reacting the surface of said wafers with at least one chemical reagent, whereby the processing does not require movement or handling of said wafers between said steps and maintaining the vessel containing said wafers hydraulically full during each **[**4]** process step.

The divisional '123 patent contains corresponding apparatus claims. Independent claims 1 and 20 are representative (emphases added):

1. Apparatus for wet processing of semiconductor wafers comprising:

(a) vessel means for supporting said wafers in a closed circulation process stream wherein process fluids may sequentially flow past said wafers, said vessel being hydraulically full with process fluid when said process fluids flow past said wafers;

(b) means for supplying at least one cleaning fluid to said process stream for removing contaminants from said wafers, and means for withdrawing said cleaning fluid from said process stream;

(c) means for supplying a rinsing fluid to said process stream for removing other fluids from said wafers, means for minimizing gas/liquid interfaces in said rinsing fluid and means for withdrawing said rinsing fluid from said process stream; and

[*1336] (d) means for supplying a drying fluid to said process stream for removing other fluids from said wafers and means for withdrawing said drying fluid from said process stream.

20. Apparatus for wet processing of semiconductor wafers comprising:

(a) vessel means for supporting **[**5]** said wafers in a closed circulation process stream wherein process fluids may sequentially flow past said wafers and

(b) means for supplying at least one chemical reagent to said process stream for reacting with portions of said wafers, said process stream being positioned within said vessel means such that said vessel means is hydraulically full with process fluid.

The record in this case shows that the inventors installed for Texas Instruments (TI) a machine that performed the claimed method. At first the apparatus did not meet this customer's standards for wafer cleanliness. The inventors adjusted the apparatus and experimented for months before meeting the customer's standards. In fact, the inventors obtained a third patent claiming the improvements in their initial

apparatus.

CFMT and CFM Technologies, Inc. * (collectively CFMT) sued YieldUp International Corp. (YieldUp) for infringement of the '532 and '123 patents. In turn, YieldUp denied infringing and asserted that the patents were invalid as nonenabled and were unenforceable for inequitable conduct before the United States Patent and Trademark Office (PTO). YieldUp moved for summary judgment that the patents were invalid **[**6]** for lack of enablement. CFMT filed a cross-motion for summary judgment that the patents were enabled.

----- Footnotes -----

** CFM Technologies, Inc. assigned the patents to holding company CFMT, Inc., which in turn granted CFM Technologies, Inc. an exclusive license.

----- End Footnotes-----

YieldUp based its nonenablement argument on problems CFMT faced in setting up a commercial embodiment of the invention, the "beta tool Full Flow" machine. As noted before, CFMT had installed the Full Flow machine at a TI site. In its first runs, the machine did not meet TI's cleanliness standards. After months of experiments, the inventors identified the problem in a drying step and solved it. Concurrently, a patent application that led to the '532 patent was pending before the PTO. While prosecuting the application, CFMT submitted a list of advantages of the invention to the PTO, but did not tell the PTO of the problems at TI. The examiner allowed the case and the '532 patent issued. As also noted, the inventors eventually filed a patent application on the improvement **[**7]** that solved the problem. That application matured into U.S. Patent No. 4,911,761 (the '761 patent).

On April 5, 2000, the district court granted YieldUp's motion for summary judgment that the '532 and '123 patents were invalid for nonenablement. The district court construed the claims of the '532 patent as limited by the preamble terms "cleaning" and "treatment," which the district court construed to mean removing contaminants from the wafer surface. CFMT, Inc., 92 F. Supp. 2d at 371-72. Similarly, the district court construed the claims of the '123 patent as limited by the preamble term "wet processing," which the district court construed to mean the same as "cleaning." Id. at 374. The district court stated that the specification "must enable one skilled in the art to clean semiconductor wafers using the Full Flow system." Id. at 377. The district court found that "the Full Flow system that was based **[*1337]** on the '532 and '123 patents could not clean" wafers, that the "inventors experimented with the Full Flow system for more than six months," and "that the solution to the problem eventually resulted in the '761 patent demonstrates that **[**8]** the experimentation required . . . was not routine." Id.

The district court further conducted a bench trial to determine whether CFMT committed inequitable conduct in prosecuting the application that matured into the '523 patent. On June 6, 2001, the district court entered judgment that the '532 and '123 patents are unenforceable due to inequitable conduct before the PTO. The district court relied on two events during prosecution of the application leading to the parent '532 patent. First, CFMT did not report to the PTO the initial TI test results (the TI data). The court concluded that the data was material because "a reasonable examiner would have considered data rebutting [the invention's] advantages in deciding whether to allow" the patents. CFMT, Inc., 144 F. Supp. 2d at 317. Second, during prosecution, the applicants traversed an **obviousness** rejection and stated eleven advantages of the invention. The district court found that the undisclosed TI data contradicted these laudatory statements. Because it considered the TI data highly material, the district court inferred that CFMT intended to deceive the PTO.

The district court then entered final judgment **[**9]** that the claims of the '532 and '123 patents were invalid and unenforceable. CFMT appealed to this court, which has jurisdiction under 28 U.S.C. § 1295(a)(1) (2000).

II.

HN1 This court reviews without deference a district court's grant of summary judgment. Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1309 (Fed. Cir. 1999). **HN2** A court considering summary judgment must "view the evidence presented through the prism of the substantive evidentiary burden." Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 245, 91 L. Ed. 2d 202, 106 S. Ct. 2505 (1986). The court must also draw all reasonable inferences in favor of the nonmovant. Id. at 255.

HN3 This court also reviews claim construction without deference. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1454 (Fed. Cir. 1998) (en banc). **HN4** Enablement is a question of law with factual underpinnings; this court reviews the ultimate legal conclusion without deference. Plant Genetic Sys., N.V. v. DeKalb Genetics Corp., 315 F.3d 1335, 1339 (Fed. Cir. 2003). **HN5** This court reviews a determination of inequitable conduct for abuse of discretion and reviews the underlying factual **[**10]** issues of materiality and intent for clear error. Bristol-Myers Squibb Co. v. Rhone-Poulenc Rorer, Inc., 326 F.3d 1226, 1234 (Fed. Cir. 2003).

A. Nonenablement

The district court based its nonenablement judgment on two grounds: (1) lack of utility or inoperability and (2) undue experimentation needed to carry out the invention. The district court first construed each of the preamble terms "cleaning," "treatment," and "wet processing" as requiring "removal of contaminants." Based on that construction, the district court concluded that "the claims of the '532 and '123 patents must enable one skilled in the art to clean semiconductor wafers using the Full Flow system." The district court considered that "the first wafers processed with the Full Flow system appeared clean to the naked eye" but looked "filthy" viewed using laser scanning. The district court concluded that the TI data showed that the claimed system did not remove particles until the inventors developed the **[*1338]** improvements leading to the '716 patent. The district court found that "the Full Flow system that was based on the '532 and '123 patents could not clean semiconductor wafers." The district court considered **[**11]** that the inventors experimented "for more than six months" making "hundreds of modifications." The district court concluded that the "fact that the solution to the problem eventually resulted in the '761 patent demonstrates that the experimentation required to enable the '532 and '123 patents was not routine."

The parties do not challenge the district court's construction of the preamble terms "cleaning," "treatment," and "wet processing" as a limitation requiring "removal of contaminants." The parties also do not dispute that the record shows CFMT's initial efforts to build the claimed apparatus and to carry out the individual steps of the claimed method required undue experimentation. Instead, this case asks this court to examine whether these claims required a specific level of contaminant removal that the disclosure did not enable. Further, this court must consider whether the improvements in the '716 patent show that the '532 and '123 patents did not enable the scope of those claimed inventions.

At the outset, the district court erred in requiring that the patent disclosures enable a single embodiment, the Full Flow system, to meet TI's commercial standards. In essence, the **[**12]** district court set the enablement bar too high. **HN6** Enablement does not require an inventor to meet lofty standards for success in the commercial marketplace. Title 35 does not require that a patent disclosure enable one of ordinary skill in the art to make and use a perfected, commercially viable embodiment absent a claim limitation to that effect.

Title 35 requires only that the inventor enable one of skill in the art to make and use the full scope of the claimed invention. Thus, when an invention claims a general system to improve the cleaning process for semiconductor wafers, the disclosure enables that invention by showing improvements in the overall system. See, e.g., Engel Indus., Inc. v. Lockformer Co., 946 F.2d 1528, 1533 (Fed. Cir. 1991) ("The enablement requirement is met if the description enables any mode of making and using the claimed invention."). Of course, if a patent claimed a system that achieved cleanliness up to a specified numerical particle-free range, then enablement would require disclosure of a method that enables one of ordinary skill to achieve that range without undue experimentation. Thus, the level of disclosure necessary to satisfy **[**13]** section 112 of title 35 varies according to the scope of the claimed invention. Durel Corp. v. Osram Sylvania Inc., 256 F.3d 1298, 1306-07 (Fed. Cir. 2001); In re Wright, 999 F.2d 1557, 1561 (Fed. Cir. 1993); In re Wands, 858 F.2d 731,

The claims of the '532 and '123 patents state no standard of cleaning. As the district court correctly found, "cleaning" in the context of this invention means generally removing contaminants from the wafer surface. Absent some standard for cleanliness in the claims, this court proceeds to examine the record for a showing that the disclosures of the CFMT patents would enable a person of skill in the art to make and use a system or apparatus to achieve any level of contaminant removal without undue experimentation. See Engel Indus., 946 F.2d at 1533.

The record contains evidence that the inventors' prototype removed grease stains. The inventors testified that before setting up the TI apparatus, they verified by naked eye that a prototype of the invention removed penciled grease marks. This record evidence is probative of whether **[*1339]** the "removal of contaminants" **[*14]** limitation is enabled. This court also notes that the record contains no evidence that a person of ordinary skill would have to undertake undue experimentation to build a similar prototype and carry out the claimed method to remove the contaminants -- in this instance, grease marks.

The lengthy experiments at TI do not show nonenablement because the inventors undertook that work to satisfy TI's particular commercial requirements, not to show enablement of the scope of the claimed inventions. **HN7** "Patents are not production documents, and nothing in the patent law requires that a patentee must disclose data on how to mass-produce the invented product. . . . The law requires that patents disclose inventions, not mass-production data, and that patents enable the practice of inventions, not the organization and operation of factories." Christianson v. Colt Indus. Operating Corp., 822 F.2d 1544, 1562 (Fed. Cir. 1987). Reliance on the TI data alone also betrays another error, namely that this **HN8** court gauges enablement at the date of the filing, not in light of later developments. In re Wright, 999 F.2d 1557, 1563 n.8 (Fed. Cir. 1993).

The district court essentially **[*15]** concluded that the invention claimed in the patents at issue simply did not work, that is, could not clean wafers, and therefore it would require undue experimentation to carry out the invention. See 35 U.S.C. § 101 (2000). **HN9** This court has recognized the relationship between the enablement requirement of § 112 and the utility requirement of § 101. See, e.g., In re Swartz, 232 F.3d 862, 863 (Fed. Cir. 2000) ("If the claims in an application fail to meet the utility requirement because the invention is inoperative, they also fail to meet the enablement requirement because a person skilled in the art cannot practice the invention"); EMI Group N. Am., Inc. v. Cypress Semiconductor Corp., 268 F.3d 1342, 1348 (Fed. Cir. 2001). In this case, however, the district court similarly set the standard for utility too high for this invention. While the district court's major premise is correct that **HN10** an inoperable invention is not enabled, the district court erred in its minor premise that the claimed invention is inoperable and lacks utility.

HN11 The inoperability standard for utility applies primarily to claims with impossible limitations. **[*16]** See, e.g., Process Control Corp. v. HydReclaim Corp., 190 F.3d 1350, 1359 (Fed. Cir. 1999) (claims found inoperable because they require violating the principle of conservation of mass); Newman v. Quigg, 877 F.2d 1575 (Fed. Cir. 1989) (claims to a perpetual motion machine ruled inoperable). Moreover, where a patent discloses several alternative combinations of methods (as most systems claims will), the party asserting inoperability must show that all disclosed alternatives are inoperative or not enabled. EMI Group, 268 F.3d at 1349. The '532 and '123 patents do not claim an impossible result or an inoperative invention.

Because the preamble term "cleaning" means only "removal of contaminants," not removal of all contaminants or removal of contaminants according to the TI commercial standard, the inventor shows utility and enables the invention by disclosing "removal of contaminants." Even if the single Full Flow embodiment does not achieve complete cleaning, that alone would not render the invention inoperative. See Moleculon Research Corp. v. CBS, Inc., 793 F.2d 1261, 1269 (claims had utility despite only a partial description of **[*17]** how to reach the claimed goal of "restoring a preselected pattern" in a puzzle; it sufficed to describe a general approach to solving the puzzle); EMI Group, 268 F.3d at 1349. Nor would it render the claims invalid as nonenabled. See Engel Indus., **[*1340]** 946 F.2d at 1533. In this case, with its specific claims and invention, the specification needed to teach one of ordinary skill to make and use a system or apparatus that removes any contaminants. In sum, any meaningful "cleaning" would satisfy the claimed goal

of "cleaning of semiconductor wafers."

The district court's second ground for nonenablement invoked the '761 improvement patent as evidence that the inventors engaged in undue experimentation to "clean" semiconductor wafers. The district court reasoned that the inventor had not enabled the '532 and '123 patents because only the further invention of the '761 improvement patent sufficed to meet TI's commercial standard.

HN12* Improvement and selection inventions are ubiquitous in patent law; such developments do not alone cast doubt on enablement of the original invention. See *Hormone Research Found., Inc. v. Genentech, Inc.*, 904 F.2d 1558, 1568 (Fed. Cir. 1990) [****18**] (citing *In re Hogan*, 559 F.2d 595 (CCPA 1977)). In general, few patented inventions are an immediate commercial success. Rather, most inventions require further development to achieve commercial success. Thus, additional inventive work does not alone show nonenablement.

Moreover, the district court's reasoning presumes incorrectly that development of an improvement patent, the '761 in this case, implies extensive experimentation. To the contrary, **HN13*** patent acquisition does not require any threshold level of effort or ingenuity. See 35 U.S.C. § 103(a) (2000) ("Patentability shall not be negated by the manner in which the invention was made."); 35 U.S.C. § 103 Revision Notes and Legislative Reports, 1952 Notes ("It is immaterial whether [the invention] resulted from long toil and experimentation or from a flash of genius."); *Life Techs., Inc. v. Clontech Labs., Inc.*, 224 F.3d 1320, 1325 (Fed. Cir. 2000) (stating that "the path that leads an inventor to the invention is expressly made irrelevant to patentability by statute"). Thus, the '761 improvement patent alone is not conclusive evidence of undue [****19**] experimentation.

Because the district court misapplied the law of enablement in concluding that the claims of the '532 and '123 patents are invalid, this court vacates that part of the decision. While the record at this stage does not appear to present a genuine issue of material fact about whether a person of ordinary skill in the art could achieve any level of cleaning with the claimed invention without undue experimentation, this court remands for the district court to reconsider that question. The district court may decide, under the correct legal standard, whether to grant CFMT's cross-motion for summary judgment of enablement or whether to proceed to trial on that issue.

B. Inequitable Conduct

HN14* Inequitable conduct requires proof that a patent applicant did not disclose material information to the PTO with intent to deceive. *Kingsdown Med. Consultants, Ltd. v. Hollister Inc.*, 863 F.2d 867, 872 (Fed. Cir. 1988). More specifically, "inequitable conduct includes affirmative misrepresentation of a material fact, failure to disclose material information, or submission of false material information, coupled with an intent to deceive." *Molins PLC v. Textron, Inc.*, 48 F.3d 1172, 1178 (Fed. Cir. 1995). [****20**] These elements must be shown with clear and convincing evidence. *Id.* The district court applied the pre-1992 standard for materiality, because the relevant acts took place before 1992. Under that standard, information is material if "there is a substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent." See *Molins*, 48 F.3d at 1179 n.8.

[***1341**] The district court concluded that CFMT committed inequitable conduct in its comments about the advantages of the invention during prosecution of the '532 patent to overcome a rejection for **obviousness** and in its failure to disclose the TI data. The district court inferred intent based on the inventors' knowledge of the materiality of the comments and omissions.

1. Misrepresentations to the PTO

The district court found that the applicants, in traversing an **obviousness** rejection during prosecution before the PTO, misrepresented the invention by stating its advantages without disclosing the TI data. The statements at issue appear in an amendment filed in December 1988 (emphases added):

The new and/or **unexpected results** and advantages **[**21]** achieved by the presently claimed invention include:

1. reduction of contamination by airborne particles;
2. reduction of contamination from human or robotic operators;
3. good heat transfer between process chemicals and wafers;
4. uniform exposure of the wafers to reagent chemicals at uniform concentrations for precisely limited periods of time;
5. reduction of hazards to personnel by minimizing exposure to chemicals;
6. minimizing stagnant conditions and avoiding filming effects; and
7. providing a mechanically simple process and apparatus which allow for easy operation and cleaning while minimizing the possibility [sic] contaminant build-ups in the apparatus.

Still further advantages are provided by preferred embodiments of the present invention, including:

1. the reduction of quantities of hazardous process fluids used due to recirculation of the process fluids;
2. the ability to provide quality drying fluids to displace the residual rinsing fluid;
3. the ability to provide a high-quality rinsing fluid having both low suspended solids and low dissolved impurities; and
4. the ability to provide high flow rates of rinsing fluid to rinse the wafers and precisely **[**22]** dilute concentrated chemical reagents.

The net effect of all the above advantages is to reduce the risk of introducing contaminants while simultaneously improving the yield of non-defective semiconductor devices.

The district court found that an examiner would have considered the TI data important because it rebuts those stated advantages. The district court focused on the final sentence quoted above, treating it as a "summary of the advantages distinguishing the Full Flow system from the Aigo tool" and interpreting "contaminants" to include all undesirable materials mentioned in the enumerated advantages. The district court concluded that "the inventors' statements in response to the **obviousness** rejection were inaccurate and constituted a misrepresentation."

The district court clearly erred in finding that the applicants' statements were material misrepresentations. In the first place, the statements were not inaccurate. As recognized by the examiner in the Notice of Allowance, the invention advances the art by closing the system for cleaning semiconductor wafers. A closed system provides the inherent advantage of less contamination by airborne particles.

The final **[**23]** sentence of the applicants' advantages advocacy refers to reducing contaminants as described in the enumerated examples. Moreover, the only specific contaminants in those examples are airborne particles (the only mention of "particles") **[*1342]** and contaminants from human or robotic operators. Thus, the advantages advocacy recited only the natural, expected results of a closed system. The final quoted sentence at most overemphasizes the benefits of the invention. This advocacy does not rise to the level of misrepresentation.

The district court also clearly erred in finding that the examiner relied on the applicants' advantages advocacy. To the contrary, the examiner, in supplying reasons for allowance, stated only that the art of record does not teach a closed, hydraulic system as claimed. Thus, the examiner concluded that no combination of the prior art, even if supported by a motivation to combine, would disclose all the limitations of the claims. In other words, the examiner detected, in light of all limitations of the claims, no **obviousness**. See *In re Gulack*, 703 F.2d 1381, 1385 n.9 (Fed. Cir. 1983); *In re Royka*, 490 F.2d 981, 985 (CCPA 1974). **HN15** **¶** (**obviousness** [****24**] requires a suggestion of all limitations in a claim). Therefore the examiner did not appear to resort to consideration of secondary considerations, such as the **unexpected results** and advantages in the quoted statements, to surmount the **obviousness** objection. In sum, the advantages advocacy was not as highly material as the district court seemed to think.

HN16 **¶** An applicant cannot prove **unexpected results** with attorney argument and bare statements without objective evidentiary support. See *In re Lindner*, 457 F.2d 506, 508, 59 C.C.P.A. 920 (CCPA 1972); *In re Geisler*, 116 F.3d 1465 (Fed. Cir. 1997) ("attorney argument [is] not the kind of factual evidence that is required to rebut a prima facie case of **obviousness**"); *In re Soni*, 54 F.3d 746, 750 (Fed. Cir. 1995) ("It is well settled that **unexpected results** must be established by factual evidence. Mere argument or conclusory statements . . . [do] not suffice." (quoting *In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984))). During prosecution, an applicant may submit objective factual evidence to the PTO in the form of patents, technical literature, and declarations under 37 C.F.R. § 1.132 [****25**] (2003) submitting expert testimony and, at times, test data. The advantages advocacy in this case does not fit any of these categories and was unaccompanied by and not asserted to be supported by any factual evidence. Therefore, a reasonable examiner would not have found it important in deciding whether to allow the application. Instead, the examiner expressly stated the grounds for allowance, namely that the art of record does not teach a closed, hydraulic system as claimed.

In sum, the district court clearly erred in finding that the applicants' statements to the PTO were misrepresentations and in finding that those statements were highly material to the examiner's actions.

2. Failure to disclose the TI data

The district court also concluded that CFMT breached the duty of candor because it did not disclose the TI data to the PTO. The district court considered the TI data material to enablement.

As already noted, the TI data was temporally and substantively of very marginal relevance to enablement of the claims as filed. As noted, the TI data reflects a commercial, not a statutory, standard for enablement. The district court therefore clearly erred in concluding that the TI data [****26**] was highly material.

3. Intent

This court recognizes that **HN17** **¶** a district court may infer intent to deceive the PTO. However, even gross negligence does not alone suffice to establish intent. *Kingsdown Med. Consultants, Ltd. v. Hollister Inc.*, 863 F.2d 867, 876 (Fed. Cir. 1988). Instead, "the involved conduct, viewed in light of all the evidence, including [***1343**] evidence indicative of good faith, must indicate sufficient culpability to require a finding of intent to deceive." *Id.*

This court discerns no evidence that CFMT intended to deceive the PTO. As explained above, the materiality of the undisclosed subject matter is low. Therefore, the trial court had little basis for inferring intent. The district court clearly erred in finding that the applicants intentionally withheld material information and therefore abused its discretion in concluding that the applicants engaged in inequitable conduct in prosecuting the patents at issue.

Accordingly, this court reverses the district court's decision on inequitable conduct.


CONCLUSION

The district court erred in granting summary judgment that the patents at issue do not meet the enablement requirement of 35 U.S.C. § 112 **[**27]** and in ruling after trial that the patents are unenforceable due to inequitable conduct before the PTO. This court therefore reverses-in-part, vacates-in-part, and remands.

COSTS

Each party shall bear its own costs.

REVERSED-IN-PART, VACATED-IN-PART, and REMANDED


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*349 F.3d 1333, *, 2003 U.S. App. LEXIS 23072, **;
68 U.S.P.Q.2D (BNA) 1940*

CFMT, Inc. v. Yieldup Int'l Corp.

01-1452

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

349 F.3d 1333; 2003 U.S. App. LEXIS 23072; 68 U.S.P.Q.2D (BNA) 1940

November 12, 2003, Decided

SUBSEQUENT HISTORY: Rehearing denied by [CFMT, Inc. v. Yieldup Int'l Corp., 2003 U.S. App. LEXIS 26684 \(Fed. Cir., Dec. 9, 2003\)](#)

CASE SUMMARY


PROCEDURAL POSTURE: Plaintiff patent holders sued defendant competitors for patent infringement under 35 U.S.C.S. § 271. The competitors denied infringing, claiming invalidity for nonenablement and unenforceability for inequitable conduct, and moved for summary judgment. The patent holder moved for summary judgment of enablement. After trial, the United States District Court for the District of Delaware held for the competitors. The patent holder appealed.

OVERVIEW: The patents covered a semiconductor wafer cleaning system. The district court based its nonenablement judgment on: (1) lack of utility or inoperability and (2) undue experimentation needed to carry out the invention. The court held that the district court erred in requiring that the patent disclosures enable a single embodiment. In essence, this set the [35 U.S.C.S. § 112](#) enablement bar too high. The lengthy experiments did not show nonenablement because the inventors undertook that work to satisfy commercial requirements, not to show enablement. While the record did not appear to present a genuine issue of material fact about whether a person of ordinary skill in the art could achieve any level of cleaning with the claimed invention without undue experimentation, this court remanded for reconsideration of that question. Moreover, the district court also clearly erred in finding that the applicants' statements were material misrepresentations. The statements were not inaccurate and the materiality of the undisclosed subject matter was low, so there was little basis for inferring intent. The district court clearly erred in finding in inequitable conduct in prosecuting the patents.


OUTCOME: The appellate court reversed and vacated the judgment and remanded for reconsideration.

CORE TERMS: patent, wafer, invention, fluid, contaminant, inventor, enablement, cleaning, semiconductor, experimentation ...

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HN15 Obviousness requires a suggestion of all limitations in a claim. [More Like This Headnote](#)

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HN16 A patent applicant cannot prove **unexpected results** with attorney argument and bare statements without objective evidentiary support. It is well settled that **unexpected results** must be established by factual evidence. Mere argument or conclusory statements do not suffice. During patent prosecution, an applicant may submit objective factual evidence to the Patent and Trademark Office in the form of patents, technical literature, and declarations under [37 C.F.R. § 1.132](#) (2003) submitting expert testimony and, at times, test data. [More Like This Headnote](#)

OPINION: ... **[*1337]** **[**8]** material because "a reasonable examiner would have considered data rebutting [the invention's] advantages in deciding whether to allow" the patents. [CFMT, Inc., 144 F. Supp. 2d at 317](#). Second, during prosecution, the applicants traversed an **obviousness** rejection and stated eleven advantages of the invention. The district court found that the undisclosed TI data contradicted these laudatory statements. Because it considered the TI data highly material, the district court inferred that CMFT intended to deceive the ...

... **[*1340]** **[**20]** [Molins, 48 F.3d at 1179 n.8](#).

[*1341] The district court concluded that CFMT committed inequitable conduct in its comments about the advantages of the invention during prosecution of the '532 patent to overcome a rejection for **obviousness** and in its failure to disclose the TI data. The district court inferred intent based on the inventors' knowledge of the materiality of the comments and omissions.

1. Misrepresentations to the PTO

The district court found that the applicants, in traversing an **obviousness** rejection during prosecution before the PTO, misrepresented the invention by stating its advantages without disclosing the TI data. The statements at issue appear in an amendment filed in December 1988 (emphases added):

The new and/or **unexpected results** and advantages **[**21]** achieved by the presently claimed invention include:

1. reduction of contamination by airborne particles;
2. reduction of contamination from human or robotic operators;
3. good heat transfer between process ...


... **[*1341]** **[**22]** a "summary of the advantages distinguishing the Full Flow system from the Aigo tool" and interpreting "contaminants" to include all undesirable materials mentioned in the enumerated advantages. The district court concluded that "the inventors' statements in response to the **obviousness** rejection were inaccurate and constituted a misrepresentation."

The district court clearly erred in finding that the applicants' statements were material misrepresentations. In the first place, the statements were not inaccurate. As recognized by the examiner in the ...

... **[*1342]** **[**23]** examiner concluded that no combination of the prior art, even if supported by a motivation to combine, would disclose all the limitations of the claims. In other words, the examiner detected, in light of all limitations of the claims, no **obviousness**. See [In re Gulack, 703 F.2d 1381, 1385 n.9 \(Fed. Cir. 1983\)](#); [In re Royka, 490 F.2d 981, 985 \(CCPA 1974\)](#) (**obviousness** **[**24]** requires a suggestion

of all limitations in a claim). Therefore the examiner did not appear to resort to consideration of secondary considerations, such as the **unexpected results** and advantages in the quoted statements, to surmount the **obviousness** objection. In sum, the advantages advocacy was not as highly material as the district court seemed to think.

An applicant cannot prove **unexpected results** with attorney argument and bare statements without objective evidentiary support. See In re Lindner, 457 F.2d 506, 508, 59 C.C.P.A. 920 (CCPA 1972); In re Geisler, 116 F.3d 1465 (Fed. Cir. 1997) ("attorney argument [is] not the kind of factual evidence that is required to rebut a prima facie case of **obviousness**"); In re Soni, 54 F.3d 746, 750 (Fed. Cir. 1995) ("It is well settled that **unexpected results** must be established by factual evidence. Mere argument or conclusory statements . . . [do] not suffice." (quoting In re De Blauwe, 736 F.2d 699, 705 (Fed. Cir. 1984))). During ...






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59 C.C.P.A. 920, *; 457 F.2d 506, **;
1972 CCPA LEXIS 352, ***; 173 U.S.P.Q. (BNA) 356

IN RE PAUL L. LINDNER

No. 8684

United States Court of Customs and Patent Appeals

59 C.C.P.A. 920; 457 F.2d 506; 1972 CCPA LEXIS 352; 173 U.S.P.Q. (BNA) 356

Oral argument March 6, 1972 April 6, 1972

PRIOR HISTORY: [***1]

APPEAL from Patent Office, Serial No. 400,901

DISPOSITION: Affirmed.

CASE SUMMARY


PROCEDURAL POSTURE: Appellant sought review of rejection of the claims in a patent application by the Patent Office Board of Appeals.


OVERVIEW: Appellant sought review of rejection of the claims in its patent application. Appellant sought to patent a dispersant, which essentially mixed a compound with another described in another patent, though not in the form delineated in appellant's patent application. The patent claims were denied by the examiner who determined that it would have been obvious that a person of the ordinary skill in the art would expect a mixture of the dispersants, also to be a dispersant. The Patent Office Board of Appeals upheld the examiner's decision. The court affirmed the rejection holding that the suggested combination in appellant's application would have been prima facie obvious to those skilled in the art and mere conclusory statements in the specification and affidavits are entitled to little weight when the Patent Office questions the efficacy of those statements.

OUTCOME: Rejection of patent claims, affirmed. The court held that mere conclusory statements in the specification and affidavits are entitled to little weight and the suggested combination in appellant's application would have been prima facie obvious to those skilled in the art.


CORE TERMS: dispersant, composition, ingredient, mixture, fertilizer, compound, ester, acid, phosphoric acid, specification, examiner, dispersion, toxicant, polybasic, sulfonic, water-soluble, organic, chain, synergistic, aliphatic, biocidal, aqueous, alkyl, salt, ethylene oxide, prima facie, surfactant, polyoxyethylene, refractory, consisting


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HN1  It is well established that the objective evidence of nonobviousness must be commensurate in scope with the claims. [More Like This Headnote](#)

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HN2 Mere lawyers' arguments unsupported by factual evidence are insufficient to establish unexpected results. [More Like This Headnote](#)

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HN3 Mere conclusory statements in the specification and affidavits are entitled to little weight when the Patent Office questions the efficacy of those statements. [More Like This Headnote](#)

COUNSEL: *Sidney Wallenstein* (Wallenstein, Spangenberg, Hattis & Strampel), attorneys of record, for appellant. *Samuel Stearman*, of counsel.

S. Wm. Cochran for the Commissioner of Patents. *Jack E. Armore*, of counsel.

OPINIONBY: ALMOND

OPINION: [****506**]

Before RICH, ALMOND, BALDWIN, LANE, Associate Judges, and MALETZ, Judge, sitting by designation

[***920**] ALMOND, Judge.

This is an appeal from the decision of the Patent Office Board of Appeals affirming the rejection of claims 1, 2, 5, 6, 8, 10, 11, 13, 15, 17, and 19 in appellant's application entitled "Dispersant Compositions Comprising (A) Phosphoric Esters of Ethoxylated Long Chain Compounds and (B) Surfactant Polybasic Compounds Containing at Least One Sulfonic or Sulfuric Acid Radical." n1 No claims have been allowed.

----- Footnotes -----

n1 Serial No. 400,901 filed October 1, 1964.

----- End Footnotes -----

The invention relates to dispersant compositions which are particularly useful in emulsifying water-insoluble [*****2**] organic solvent solutions of biocidal toxicant (i.e., insecticide, weed killer, herbicide, or soil fumigant) and aqueous solutions of fertilizer material. Appellant states in his specification that while a number of dispersant compositions [***921**] are known which produce excellent dispersions of biocidal toxicants in aqueous solutions of a wide variety of water-soluble fertilizers, there are some fertilizer solutions (for example, liquid fertilizers commonly referred to as 7-21-7 and 6-18-6) which are particularly resistant or refractory to the production of fully satisfactory dispersions. The claimed dispersant compositions comprise ingredients (a) and (b) which are said to "coact to produce a synergistic effect" in that they produce stable dispersions with refractory fertilizer solutions as well as other fertilizer solutions. The compounds which may be used as ingredient [****507**] (a) are water-soluble to readily water-dispersible phosphoric acid mono- and di- esters of polyoxyethylene ethers, usually in the form of ethylene oxide adducts, of long chain aliphatic alcohols, long chain aliphatic mercaptans and alkyl phenols. The compounds which may be used as ingredient (b) [*****3**] are organic solvent-soluble surfactant polybasic acids which contain at least one radical selected from the group consisting of sulfonic acid and sulfuric acid radicals.

Claim 1 is illustrative:

1. A dispersant composition comprising (a) a water-soluble to readily water-dispersible phosphoric acid ester of at least one member selected from the group consisting of (1) long chain aliphatic ethers and thioethers of polyoxyethylene glycols, the long chain aliphatic radicals containing from 10 to 26 carbon atoms, and (2)

polyoxyethylene glycol ethers of alkylated phenols the alkyl radical or radicals of which contain a total of from 7 to 24 carbon atoms, the number of oxyethylene groups in the molecules of said (a) compounds falling within the range of 4 to 30, and (b) an organic solvent-soluble surfactant polybasic acid compound containing at least one radical selected from the group consisting of sulfonic and sulfuric acid radicals.

Like claim 1, claims 2, 5, 6, 8, 10 and 11 are directed to dispersant compositions. The recitation of the composition of ingredients (a) and (b) varies in breadth in these claims. Claims 13 and 15 are directed to toxicant concentrate containing *****4** a dispersant composition. Claims 17 and 19 are for a combination of biocidal toxicant water-soluble organic salt fertilizer composition emulsified with a dispersant composition. Appellant, in his brief, indicates that he considers claims 10, 11 and 17, as well as claim 1, to be illustrative. However, since all the claims have otherwise been considered together by both the Patent Office and appellant, they apparently will stand or fall together.

The references relied upon are:

Lindner	2,976,211	Mar. 21, 1961
Nunn et al. (Nunn)	3,004,056	Oct. 10, 1961

Lindner discloses dispersant compositions (as well as toxicant concentrates and dispersions comprising toxicants and aqueous solutions of water-soluble fertilizers) containing (a) certain polybasic acid compound surfactants and (b) certain amine salts of alkyl benzene ***922** sulfonic acids. Ingredient (a) of the mixture in the Lindner patent is the same as ingredient (b) of the claimed mixture.

Nunn discloses that phosphoric acid esters of various ethylene oxide adducts, the same compounds as those of ingredient (a) of the claimed mixture, may be used generally as dispersing agents.

The examiner *****5** rejected all the claims under 35 USC 103 as unpatentable patentable over Lindner in view of Nunn, reasoning that since the compounds shown in Lindner and the compounds shown in Nunn the each known to be dispersants, it would have been obvious to combine these two old dispersants, and one of ordinary skill in the art would expect a mixture of such dispersants also to be a dispersant. The board agreed with the examiner.

We, too, agree with the examiner. The polybasic acid compounds of ingredient (b) and the phosphoric acid esters of ingredient (a) are all known dispersants as indicated by the art of record. In addition, Lindner indicates that mixtures of dispersant compositions may be advantageously used to permit combining concentrated aqueous fertilizer solutions with organic solvent solutions of biocidal substances to produce homogenous emulsions or dispersions. While the second ingredient in the mixture in the Lindner patent (i.e., the amine salts of alkyl benzene sulfonic acids) is in no way related to the second ingredient in the claimed mixtures (i.e., the phosphoric acid esters), this does not detract from the teaching in Lindner that mixtures of known dispersant compositions *****6** may be used. Considering the various teachings of the prior art, we ****508** conclude that the suggested combination of the polybasic acids of Lindner with the phosphoric acid esters of Nunn would indeed have been prima facie obvious to those skilled in the art.

Although appellant elsewhere in his brief contends that there is no teaching which suggests combination of the ingredients of Lindner and Nunn (an argument which we reject for the reasons given above), at one point he seemingly admits that the Patent Office has established a case of prima facie obviousness when he states:

If all that appellant obtained by combining the (a) and (b) classes of dispersants was simply a dispersant composition whose properties and utilities were essentially the same as those of the (a) and (b) dispersants per se, we should have no quarrel with the decision of the Board of Appeals * * *.

It is appellant's position that when the particular (a) and (b) classes of dispersants are used in combination, a synergistic effect is produced and properties are obtained and results are achieved which are unobtained and unobtainable with either the (a) or (b) dispersants alone. In support of this *****7** contention, appellant relies on both the specification as filed and a Rule 132 affidavit submitted in response to the examiner's

[*923] continuance of the rejection "in the absence of convincing evidence of unexpected coaction."

The examiner and the board found the Rule 132 affidavit unpersuasive for a number of reasons, but basically it was their view that since only a single composition of those included in the claims was tested, the affidavit "falls far short of establishing that the compositions encompassed by claims of the scope of those on appeal possess unexpected properties." The same complaint about a lack of sufficient factual evidence of a synergistic effect with all the compositions claimed was leveled against the specification.

[1] We fully agree with the position of the Patent Office in that regard. ^{HN1} It is well established that the objective evidence of nonobviousness must be commensurate in scope with the claims. See, e.g., In re Hyson, 59 CCPA 782, 453 F.2d 764, 172 USPQ 399 (1972); In re Tiffin, 58 CCPA 1420, 448 F.2d 791, 171 USPQ 294 (1971) (per curiam). Here only one mixture of ingredients was tested, that being a mixture of (a) phosphoric acid ester [***8] of 12 mol ethylene oxide adduct of nonyl phenol (containing about 60% mono- and about 17.5% diester) and (b) half ammonium half isopropylamine salt of the sulfosuccinic acid ester of the oleic acid amide of monoisopropanolamine (65% active). This particular mixture was found to produce a good dispersion with refractory 7-21-7 fertilizer solutions. As the board noted, the specification also indicates that the same mixture was successfully used with 7-21-7 fertilizer solutions. The claims, however, are much broader in scope, covering mixtures of numerous compounds, and we have to agree with the Patent Office that there is no "adequate basis for reasonably concluding that the great number and variety of compositions included by the claims would behave in the same manner as the [single] test composition." Cf., In re Saunders, 58 CCPA 1316, 1324, 444 F.2d 599, 605, 170 USPQ 213, 218 (1971).

The affidavit and specification do contain allegations that synergistic results are obtained with all the claimed compositions, but those statements are not supported by any factual evidence other than that limited amount of evidence discussed above. This court has said previously that ^{HN2} mere lawyers' [***9] arguments unsupported by factual evidence are insufficient to establish unexpected results. In re Cavanagh, 58 CCPA 856, 436 F.2d 491, 168 USPQ 466 (1971); In re Takai, 59 CCPA 701, 449 F.2d 1393, 171 USPQ 558 (1971). Likewise, ^{HN3} mere conclusory statements in the specification and affidavits are entitled to little weight when the Patent Office questions the efficacy of those statements. In re Hyson, supra; In re D'Ancicco, 59 CCPA 748, 452 F.2d 1060, 172 USPQ 241 (1972). After considering the specification, [**509] affidavit, and [*924] arguments of counsel, we agree with the board that there is insufficient evidence to overcome the case of prima facie obviousness found to exist here.

The board also affirmed the examiner's rejection of all claims, except claim 11, under 35 USC 112. However, because of our disposition of the rejection under 35 USC 103, we find it unnecessary to reach the § 112 issue.

The decision of the board is affirmed.

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